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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,017	06/01/2005	Mark Azevedo	245-67314-02	2143
<div>24197 7590 09/19/2007 KLARQUIST SPARKMAN, LLP 121 SW SALMON STREET SUITE 1600 PORTLAND, OR 97204</div>				
			EXAMINER LIU, SAMUEL W	
			ART UNIT 1656	PAPER NUMBER
			MAIL DATE 09/19/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/537,017

Applicant(s)

AZEVEDO ET AL.

Examiner

Samuel W. Liu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,7,9,13-15,22,24,25,30-40,45,48-50,53 and 54 is/are pending in the application.
- 4a) Of the above claim(s) 6,7,13-15,30-40,45,48,50,53 and 54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,22,24-25 and 49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of claims

Claims 1, 6-7, 9, 13-15, 22, 24-25, 30-40, 45, 48-50, and 53-54 are pending.

Priority

Acknowledgment is made of applicant's claim for domestic priority under 35 USC 119 (e) to a provisional application 60431651 filed 12/6/2002.

Restriction/Restrictions

Applicant's election (filed 8/20/07) of Group III, claims 1, 22, 24-25 and 49 and species C (*Pseudomonas fluorescens* Biotype C WH6) with traverse is acknowledged. The traversal is on the ground that Groups I-XV are linked to form a single general inventive concept (page 10, last paragraph). The Office has not provide evidence that the identification of germination arrest factor (GAF) and its biological activity are disclosed or rendered obvious in the prior art; and thus, GAF and its activity constitute appropriate special technical feature sufficing the unity of invention requirement (page 11, 4th paragraph). The response discusses all the pending claims and infers that Group I-XV should be examined (page 12, 4th paragraph). In addition, Applicants propose "re-definition" of Groups shown in the table at page 13, and request withdrawal of the restriction requirement (page 14). The applicants' arguments are found not persuasive because the polypeptides and polynucleotides in each group are patentably distinct, e.g., GAF polypeptide sequence of SEQ ID NO:3 is distinct from that of SEQ ID NO:4 as evidenced by instant claim 14 and "Sequence listing". Thus, GAF cannot serve as a common technical feature to link all the Groups restricted.

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As for as the prior art concerned, Boyetchko et al. (US 2003/0054959 A1) teach an isolated *Pseudomonas fluorescens* strain BRG100 producing a biocontrol agent for suppressing weed suppressing activity (see [0026] and [0027]), wherein said activity is inhibition of root germination as is evidenced by the Pedras et al. teaching (see abstract). Thus, the biocontrol agent produced by BRG100 strain has inherent property of germination arrest factor (GAF). Therefore, the inventions listed as Groups I-XV do not related to a single general invention concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the reason state above. The claimed GAF does not constitute a special technical feature as defined by PCT Rule 13.2 and 37 CFR 1.475(a), as a single contribution over the art, and a holding of lack of unity is therefore proper. Thus, the applicants' proposed Groups set forth on page 13 of the response will not be under due consideration. The requirement is still deemed proper and is therefore made FINAL.

Claims 6-7, 13-15, 30-40, 45, 48, 50-50 and 53-54 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Claims 1, 22, 24-25 and 49 and cell strain *Pseudomonas fluorescens* Biotype C WH6 are examined in this Office action.

IDS

The references cited in the IDS filed 10/3/05 have been considered by Examiner.

Objections to specification

The disclosure is objected to because of the following informalities:

At pages 7-8, the description to Figures 11-13 should indicate what is the pointed by the arrows shown in each figure.

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At pages 7-8, the description to Figures 11-13 should indicate what is the pointed by the arrows shown in each figure.

At page 46, line 19, "Figures 2A and B" should be changed to "Figures 2A and 2B".

Objection to claim

Claim 49 is object to because of containing non-elected subject matter, i.e.,

Pseudomonas fluorescens Biotype B E34, *Pseudomonas fluorescens* Biotype C WH19,

Pseudomonas fluorescens Biotype AH4, and *Pseudomonas fluorescens* Biotype B AD31.

Claims 22, 24 and 25 are objected to as being dependent from non-elected claim 6.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Deposit requirement

Claim 49 is rejected under 35 USC 112, first paragraph because claim 49 recites the GAF-producing bacterial strains having deposit numbers: NRRL B-30485 (elected), and NRRL B30481, NRRL B30484, NRRL B 30482 and NRRL B-30483 (non-elected). Since said bacterial strains are the subject matter of the claimed invention, it must be obtainable by a repeatable method for obtaining said strains or otherwise be readily available to the public. If the organism is not so obtainable or available, the requirement of U.S.C. 112 may be satisfied by a deposit of the microorganism.

The specification sets forth that these bacterial strains have been deposited with agriculture Research Service (ARS) Culture Collection (see page 27, line 14 to page 28, line 7). However,

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instant disclosure does not describe the corresponding full address of depository nor statement of irrevocability upon granting of a patent.

It is noted that the applicants have deposited the microorganism but there is no sufficient indication in the specification as to public availability. If the deposit is made under the terms of the Budapest Treaty, then an affidavit or declaration by the applicants, or a statement by an attorney of record over his or her signature and registration number, stating that the specific strains have been deposited under the Budapest Treaty and that the strain will be irrevocably and without restriction or condition releases to the public upon the issuance of a patent and receipt showing the appropriate biological material was received and entered into the depository, would satisfy the deposit requirement made herein.

If the deposit has not been made under the Budapest Treaty, then in order to certify the deposit meets the criteria set forth in 37 C.F.R. 1.801-1.809 applicants may provide assurance of compliance by an affidavit or declaration, or by statement by an attorney of record over his or her signature and registration number indicating that:

- a) during the pendency of this application, access to the invention will be afforded to the Commissioner upon request;
- b) all restriction upon availability to the public will be irrevocably removed upon granting of the patent;
- c) the deposit will be maintained in a public depository for a period of 30 years or 5 years after the last request or for the enforceable life of the patent, whichever is longer;
- d) a test of the viability of the biological material at the time the deposit was made and

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that such test result indicated that said biological material was viable (see 37 C.F.R.

1.807); and

e) the deposit will be replaced if it should ever become unviable.

Claim Rejections - 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 22, 24 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyetchko et al. (US 2003/0054959 A1) evidenced by the Pedras et al. (*Phytochemistry* (2003) 62, 1105-1114).

Boyetchko et al. teach an isolated *Pseudomonas fluorescens* strain BRG100 which naturally produces a biocontrol agent having weed suppressing activity (see [0026] and [0027]), e.g., suppressing green foxtail weed growth (including germination) (see [0047]) wherein

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Pseudomonas fluorescens strain BRG100 inherently produces a molecule to inhibit the green foxtail germination (see abstract, Pedras et al. reference). This demonstrates that the biocontrol agent mentioned above has the inherent “germination arrest” property which meets the definition of GAF found on page 13 of the specification. Therefore, Boyetchko et al. anticipate claim 1.

In patent claim 21, Boyetchko et al. teach a method of inhibiting weed growth comprising providing the isolated biocontrol agent that comprises BRG100 cell strain (see patent claim 1) and applying the agent to a weed, wherein inhibition of weed growth is assessed by inhibition of weed’s germination (see Example 3). Therefore, Boyetchko et al. teach the method of claim 22.

In Example 3, Boyetchko et al. teach the biocontrol composition comprising said cell strain and Hoagland’s solution (a plant nutrient solution or fertilizer), which meets the limitations of claims 24 and 25.

Claims 1, 22, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kennedy et al. (Weed Sci. (2001) 49, 792-797).

Kennedy et al. teach a bacterial stain *Pseudomonas fluorescens* D7 (*p. f.* D7) that inhibits germination of downy brome, a winter annual grass (see abstract), i.e., this strain biologically contains a factor inhibiting germination which meets the definition of GAF found on page 13 of the specification. Therefore, Kennedy et al. anticipate claim 1.

At page 793, “Agar plate bioassay” section, Kennedy et al. teach applying of prepared *p. f.* D7 culture broth to a plate which contains the seed of downy brome grass to assay for germination of the seed thereof, which anticipates claim 22.

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In the above assay method, *p. f.* D7 cells are in a supernatant formulation containing water as solvent, which anticipate claim 24.

The supernatant is in a solution form, which anticipates claim 25.

Conclusion

No claims are allowed.

Discussion of the art

The prior art made of record and not currently relied upon in any rejections is considered pertinent to Applicants' disclosure:

- Mills et al. (Workshop (2003) Biocontrol of weeds with pathogens, pages 37-38) teach *Pseudomonas fluorescens* strain WH6 which produces GAF. This reference is not the prior art because it does not antedate the current invention.

- Azevedo, M (Progress Report FY03 (2002, December) Control of grassy weeds: development of a novel, highly specific, naturally occurring bioherbicide, <http://gscssa.wsu.edu/progress/03/103.htm>, pages 1-3) teach *Pseudomonas fluorescens* strain WH6 which produces GAF, and teach a partial purification of GAF from said strain and use of the purified GAF to arrest germination of the seeds of sensitive weed species on soil-free system or native soils. This reference is not the prior art because it does not antedate the current invention.

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 1656.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Wei Liu whose telephone number is 571-272-0949. The examiner can normally be reached from 9:00 a.m. to 5:30 p.m. on weekdays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 703 308-4242 or 703 872-9306 (official) or 703 872-9307 (after final). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-4700.

SWL

Samuel Wei Liu, Ph.D.

Patent Examiner, Art Unit 1656

August 29, 2007

Kathleen Kerr Bragdon
KATHLEEN KERR BRAGDON, PH.D.
SUPERVISORY PATENT EXAMINER